

**WASHINGTON
AGRICULTURAL
CHEMICAL USAGE
PEARS
2003 Crop**



U.S. Department of Agriculture
Washington Agricultural Statistics Service
P.O. Box 609, Olympia, WA 98507

August 2004

Pears

Three states were surveyed for pears in 2003: California, Oregon, and Washington. Surveyed acreage totaled 61,400 bearing acres. Washington was the largest state surveyed for pears and accounted for 40 percent of the acreage.

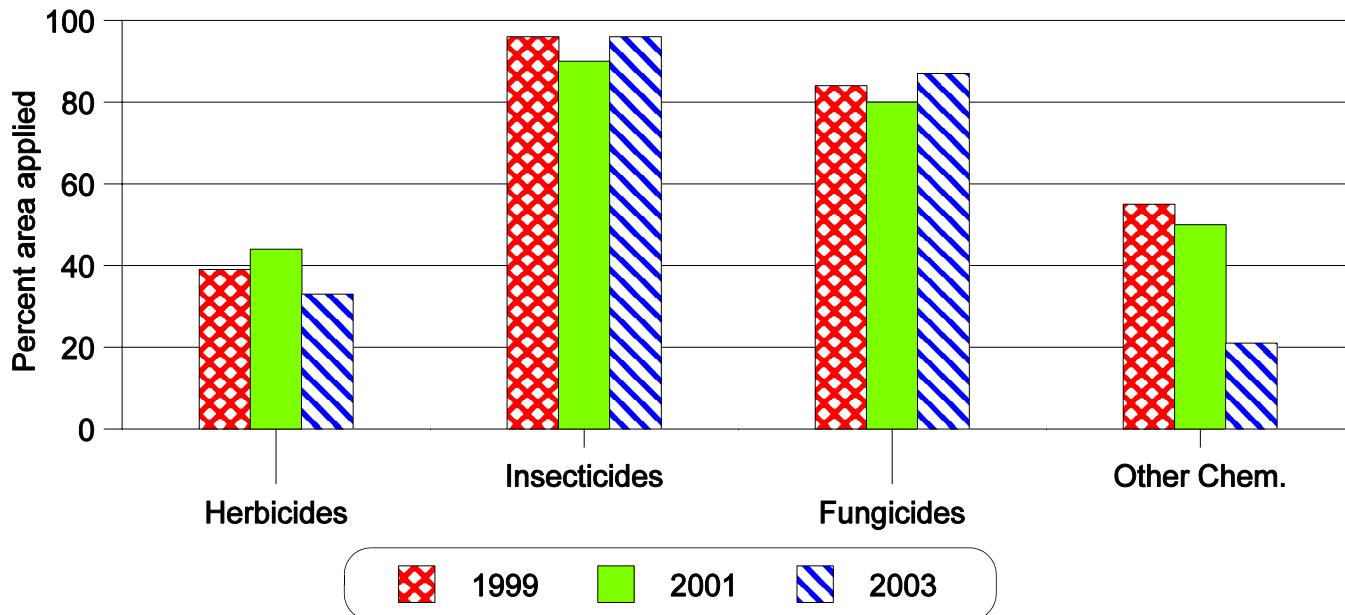
**Pears: Pesticide Applications, Bearing Acreage and Percentage Receiving Applications,
Major States and Total, 2001 and 2003**

State	Bearing Acreage		Area Receiving and Total Applied 1/							
			Herbicide		Insecticide 2/		Fungicide 2/		Other Chemicals	
	2001	2003	2001	2003	2001	2003	2001	2003	2001	2003
	Acres		Percent							
California 1/	19,000	19,000	60	33	87	70	81	69	62	18
Oregon	17,000	17,600	44	31	97	99	96	99	57	24
Washington	24,800	24,800	44	33	90	96	80	87	50	21
TOTAL	60,800	61,400	49	32	91	89	85	85	56	20

1/ Acreage in California includes nonbearing acres for 2001. Total applied may include applications of some active ingredients made only to nonbearing acres.

2/ 2001 Total Applied excludes Bt's (*Bacillus thuringiensis*) and other biologicals. Quantities are not available because amounts of active ingredient are not comparable between products.

Pears: Ag Chemical Applications, Washington



Pears: Agricultural Chemical Applications, Washington, 2001 and 2003 1/

Active Ingredient 2/	Area Applied		Applications		Rate Per Application		Rate Per Crop Year		Total Applied	
	2001	2003	2001	2003	2001	2003	2001	2003	2001	2003
	Percent		Number			Pounds Per Acre			1,000 Lbs.	
Fertilizers:										
Nitrogen	-	80	-	1.8	-	39	-	74	-	1,467
Phosphate	-	27	-	1.6	-	10	-	17	-	111
Potash	-	24	-	1.5	-	13	-	21	-	128
Herbicides:										
2, 4-D	4	5	1.2	1.0	0.89	1.17	1.07	1.17	0.9	1.5
Diuron	8	-	1.0	-	1.34	-	1.35	-	2.6	-
Glyphosate	39	29	1.7	1.8	1.18	1.40	2.04	2.57	19.7	18.5
Norflurazon	9	6	1.1	1.5	1.50	1.57	1.65	2.41	3.7	3.5
Paraquat	7	5	1.3	1.2	0.56	0.75	0.75	0.96	1.2	1.2
Simazine	9	9	1.0	1.6	1.43	1.30	1.51	2.18	3.3	5.1
Insecticides:										
Abamectin	68	69	1.5	1.2	0.02	0.02	0.03	0.03	0.5	0.5
Acetamiprid	-	47	-	1.5	-	0.13	-	0.21	-	2.4
Azinphos-methyl	46	57	2.0	2.0	1.00	0.99	2.02	2.04	22.8	28.7
Benzoic acid	9	18	1.3	1.2	0.21	0.24	0.29	0.30	0.7	1.3
Bifenazate	5	13	1.1	1.1	0.49	0.43	0.54	0.48	0.6	1.6
Bt(Bacillus thur.)	6	6	1.3	1.5	3/	3/	3/	3/	3/	3/
Carbaryl	6	2	1.1	1.2	1.84	3.05	2.09	3.71	3.1	2.0
Chlorpyrifos	33	42	1.0	1.0	1.94	1.96	2.09	2.07	17.1	21.6
Clofentezine	2	-	1.2	-	0.21	-	0.25	-	0.1	-
Diazinon	7	-	1.0	-	1.70	-	1.70	-	2.9	-
Endosulfan	45	40	1.1	1.1	1.94	2.02	2.26	2.22	25.2	22.0
Esfenvalerate	16	15	1.0	1.0	0.07	0.07	0.08	0.08	0.3	0.3
Formetanate hydro.	1	11	1.0	1.0	0.51	0.50	0.51	0.51	0.2	1.4
Imidacloprid	23	7	1.3	1.3	0.14	0.13	0.19	0.18	1.1	0.3
Kaolin	15	42	2.5	2.2	39.75	46.60	99.72	106.81	370.1	1,102.6
Methidathion	1	-	1.0	-	1.50	-	1.50	-	0.5	-
Petroleum distillate	85	79	3.8	4.0	13.49	14.70	51.69	59.74	1,095.6	1,171.7
Phosmet	28	18	1.4	1.4	3.00	2.97	4.37	4.27	29.9	18.8
Pyridaben	15	25	1.1	1.3	0.31	0.22	0.37	0.28	1.3	1.8
Pyriproxyfen	33	-	1.1	-	0.10	-	0.12	-	1.0	-
Spinosad	-	14	-	1.1	-	0.09	-	0.11	-	0.4
Thiamethoxam	26	56	1.2	1.2	0.08	0.07	0.09	0.09	0.6	1.2
Fungicides:										
Basic copper sulfate	-	4	-	1.0	-	1.00	-	1.00	-	0.9
Calcium polysulfide	10	9	1.5	1.1	23.13	30.50	35.75	34.37	88.5	79.4
Copper hydroxide	30	23	1.9	1.4	2.17	1.76	4.16	2.49	30.6	14.0
Copper sulfate	4	7	1.6	1.1	0.66	1.47	1.05	1.63	0.9	2.7
Dodine	-	4	-	1.3	-	0.83	-	1.15	-	1.2
Fenarimol	2	3	1.4	1.3	0.07	0.07	0.10	0.10	**	0.1
Kresoxim-methyl	1	2	1.5	1.0	0.14	0.17	0.21	0.17	0.1	0.1
Mancozeb	16	16	1.7	1.1	4.58	5.60	7.77	6.35	30.9	24.6
Oxytetracycline	35	23	2.3	1.8	0.14	0.20	0.33	0.36	2.9	2.1
Streptomycin	7	5	1.1	1.3	0.19	0.26	0.21	0.36	0.04	0.4
Sulfur	38	38	1.5	1.3	9.29	9.30	14.70	12.63	136.9	118.5
Triadimefon	-	5	-	1.1	-	0.20	-	0.22	-	0.3
Trifloxystrobin	1	-	1.0	-	0.06	-	0.06	-	**	-
Triflumizole	33	40	1.3	1.4	0.25	0.25	0.33	0.36	2.7	3.6
Ziram	23	32	1.2	1.1	3.90	4.78	5.00	5.32	28.0	41.8

Note: May not multiply across due to rounding.

** Total applied is less than 50 pounds.

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1/ Bearing acres in 2001 and 2003 in Washington were 24,800 acres.

2/ Insufficient reports to publish data for the following agricultural chemicals: 2001; **Herbicides:** 2,4-D, Dimeth. salt, Atrazine, Oryzalin, Oxyfluorfen, Sulfosate. 2001; **Insecticides:** Amitraz, Azadirachtin, Cyd-X Granulo. Virus, Dicofol, Dimethoate, Ethyl parathion, Fenbutatin-oxide, Fenvalerate, Hexythiazox, Indoxacarb, Methyl parathion, Neem oil, clar. hyd., Oxythioquinox, Permethrin, Piperonyl butoxide, Potassium salts, Pyrethrins, Rotenone, Silicon dioxide, Spinosad. 2001; **Fungicides:** Bacillus subtilis, Bas copper zinc sulf, Basic copper sulfate, Chlorothalonil, Copper chloride hyd., Copper oxychlo. sul., Dodine, Fosetyl-al, Maneb, Metiram, Myclobutanil, Potassium bicarbon., Propiconazole, Pseudomonas fluores., Triadimefon. 2001; **Other Chemicals:** Aluminum phosphide, Benzyladenine, Butenois acid hydro., Chlorophacinone, Chloropicrin, Cytokinins, Dichloropropene, Diphacinone, E-8-Dodecenyl acetat, Ethephon, Garlic oil, Gibberellic acid, Gibberellins A4A7, Gossypure, NAD, Prohexadione calcium, Strychnine, Z-8-Dodecanol, Z-8-Dodecenyl acetate, Zinc phosphide. 2003; **Herbicides:** Diuron, Glyphosate diam salt, Oryzalin, Oxyfluorfen, Pronamide. 2003; **Insecticides:** Amitraz, Azadirachtin, Clofentezine, Cyd-X Granulo. Virus, Diazinon, Dicofol, Diflubenzuron, Ethyl parathion, Fenbutatin-oxide, Fenpropothrin, Lambda-cyhalothrin, Malathion, Methidathion, Methyl parathion, Piperonyl butoxide, Potassium salts, Propargite, Pyriproxyfen, Tebufenoziide. 2003; **Fungicides:** Bacillus subtilis, Copper chloride hyd., Copper oxychlo. Sul., Copper oxychloride, Fosetyl-al, Maneb, Myclobutanil, Potassium bicarbon., Propiconazole, Pseudomonas fluores., Trifloxystrobin. 2003; **Other Chemicals:** Benzyladenine, Butenoic Acid Hydro., Cytokinins, Dodecanol, Ethephon, Gibberellic acid, Gibberellins A4A7, Harpin protein, Lactic acid, NAD, Strychnine, Tetradeanol, Zinc phosphide.

3/ Rates and total applied are not available because amounts of active ingredient are not comparable between products.

Pears: Agricultural Chemical Applications, Washington, 2001 and 2003 1/(cont.)

Active Ingredient 2/	Area Applied		Applications		Rate Per Application		Rate Per Crop Year		Total Applied	
	2001	2003	2001	2003	2001	2003	2001	2003	2001	2003
Other Chemicals:	Percent		Number		Pounds Per Acre				1,000 Lbs.	
Dodecadien-1-ol	15	16	1.0	1.0	0.05	0.05	0.05	0.05	0.2	0.2
Dodecanol	14	-	1.0	-	0.03	-	0.03	-	0.1	-
NAA	26	43	1.0	1.1	0.05	0.05	0.05	0.05	0.3	0.6
NAA, Potassium salt	7	-	1.5	-	0.05	-	0.07	-	0.1	-
Tetradecanol	14	-	1.0	-	0.006	-	0.006	-	**	-

See footnotes, at end of table, on previous page.

Pears: Agricultural Chemical Applications, Major States, 2001 and 2003 1/

Active Ingredient 2/	Area Applied		Applications		Rate Per Application		Rate Per Crop Year		Total Applied	
	2001	2003	2001	2003	2001	2003	2001	2003	2001	2003
Fertilizers:	Percent		Number		Pounds Per Acre				1,000 Lbs.	
Nitrogen	-	83	-	2.1	-	31	-	66	-	3,373
Phosphate	-	35	-	2.0	-	17	-	34	-	736
Potash	-	36	-	1.9	-	20	-	38	-	836
Herbicides:										
2, 4-D	4	7	1.2	1.6	0.84	0.79	1.02	1.29	2.5	5.5
2, 4-D, Dimeth. salt	5	3	1.1	1.4	1.17	0.28	1.36	0.41	4.3	0.9
2, 4-DP, Dimeth. salt	2	-	1.6	-	0.46	-	0.77	-	1.1	-
Diuron	10	5	1.3	1.1	1.21	1.64	1.63	1.82	9.7	5.2
Glyphosate	40	30	1.7	1.8	0.82	1.12	1.40	2.06	34.1	37.6
Norflurazon	8	3	1.1	1.4	2.02	1.56	2.23	2.24	10.3	4.1
Oryzalin	-	5	-	1.0	-	3.93	-	3.93	-	11.0
Oxyfluorfen	6	7	1.2	1.1	0.30	0.74	0.37	0.86	1.2	3.8
Paraquat	12	5	1.4	1.2	0.42	0.61	0.62	0.78	4.7	2.3
Simazine	12	8	1.3	1.3	1.26	1.50	1.66	2.07	12.4	9.9
Sulfosate	5	3	1.0	1.0	2.25	1.24	2.35	1.24	7.5	2.0
Insecticides:										
Abamectin	60	59	1.3	1.2	0.02	0.02	0.03	0.02	0.9	0.8
Acetamiprid	-	38	-	1.4	-	0.14	-	0.19	-	4.5
Amitraz	4	*	1.0	1.0	1.24	0.99	1.28	0.99	3.2	0.5
Azadirachtin	4	5	1.8	2.1	0.03	0.02	0.05	0.03	0.1	0.1
Azinphos-methyl	44	50	1.7	1.8	1.05	1.06	1.88	1.96	50.6	60.2
Benzoic acid	8	19	1.2	1.2	0.23	0.24	0.28	0.30	1.3	3.5
Bifenazate	6	16	1.0	1.1	0.47	0.45	0.48	0.51	1.7	5.0
Bt (Bacillus thur.)	4	3	1.5	1.5	3/	3/	3/	3/	3/	3/
Carbaryl	2	2	1.1	1.4	1.84	1.40	2.09	1.97	3.1	2.3
Chlorpyrifos	28	24	1.1	1.0	1.78	1.88	2.05	2.02	34.9	29.9
Clofentezine	2	3	1.1	1.0	0.16	0.12	0.17	0.12	0.2	0.2
Diazinon	3	4	1.0	1.1	1.82	1.93	1.83	2.13	3.8	5.8
Diflubenzuron	-	*	-	1.4	-	0.18	-	0.27	-	0.1
Dimethoate	3	-	1.0	-	0.43	-	0.43	-	0.7	-
Endosulfan	-	40	-	1.1	-	1.43	-	1.64	-	40.5
Esfenvalerate	24	26	1.1	1.0	0.07	0.07	0.08	0.08	1.2	1.2
Fenbutatin-oxide	6/	6	1.0	1.0	0.65	0.58	0.66	0.62	0.2	2.3
Fenpropathrin	1	7	1.0	1.0	0.32	0.36	0.34	0.38	0.2	1.6
Formetanate hydro.	1	5	1.0	1.0	0.72	0.50	0.72	0.51	0.4	1.5
Hexythiazox	4	7	1.0	1.0	0.13	0.10	0.14	0.10	0.4	0.4
Imidacloprid	15	7	1.2	1.2	0.15	0.11	0.19	0.14	1.7	0.6
Kaolin	14	24	2.1	2.3	31.55	39.60	67.51	92.03	576.1	1,362.9
Methidathion	1	-	1.0	-	1.44	-	1.50	-	1.3	-
Permethrin	4	4	1.4	1.2	0.17	0.11	0.25	0.14	0.6	0.3
Petroleum distillate	86	80	3.4	3.3	16.86	19.48	58.32	66.14	3,040.9	3,264.0
Petroleum oil	4	2	1.4	1.8	9.62	0.96	14.12	1.75	33.3	2.0
Phosmet	32	20	1.4	1.2	3.00	3.06	4.33	3.84	83.3	46.7
Pyridaben	11	19	1.1	1.2	0.32	0.16	0.37	0.20	2.4	2.4
Pyriproxyfen	-	35	-	1.2	-	0.08	-	0.10	-	2.2
Spinosad	-	8	-	1.2	-	0.10	-	0.12	-	0.6
Tebufenozide	5	7	1.4	1.4	0.27	0.29	0.38	0.41	1.1	1.7
Thiamethoxam	16	36	1.1	1.2	0.08	0.07	0.09	0.09	0.9	2.0

See footnotes at end of table.

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Pears: Agricultural Chemical Applications, Major States, 2001 and 2003 1/ (cont.)

Active Ingredient 2/	Area Applied		Applications		Rate Per Application		Rate Per Crop Year		Total Applied	
	2001	2003	2001	2003	2001	2003	2001	2003	2001	2003
Fungicides:	Percent		Number		Pounds Per Acre				1,000 Lbs.	
Bacillus subtilus	-	*	-	1.1	-	3/	-	3/	-	3/
Basic copper sulfate	3	2	1.1	1.1	2.81	1.95	3.33	2.18	5.7	2.5
Benomyl	3	-	1.3	-	0.53	-	0.70	-	1.3	-
Calcium polysulfide	17	15	1.3	1.4	20.67	26.38	26.87	37.68	275.8	337.0
Copper chloride hyd.	6/	-	1.6	-	0.50	-	0.81	-	0.2	-
Copper hydroxide	25	25	1.7	1.3	1.71	2.48	2.99	3.36	46.2	50.6
Copper oxychlo. sul.	8	6	1.5	1.0	1.54	1.52	2.43	1.60	11.5	6.2
Copper oxychloride	6/	2	1.0	1.0	4.60	2.29	4.60	2.29	2.2	2.1
Copper sulfate	4	4	1.3	1.0	0.59	1.13	0.78	1.22	1.7	3.2
Cyprodinil	1	13	1.1	-	0.18	-	0.21	-	0.1	-
Dodine	8	-	1.7	1.7	1.01	1.23	1.76	2.17	8.1	17.5
Fenarimol	1	2	1.2	1.2	0.07	0.07	0.09	0.09	0.1	0.1
Fosetyl-al	2	2	1.4	1.2	2.18	2.16	3.17	2.78	3.8	2.6
Kresoxim-methyl	2	2	1.2	1.2	0.13	0.15	0.16	0.19	0.2	0.3
Mancozeb	34	46	1.7	2.0	3.92	3.44	6.82	7.17	139.3	201.8
Maneb	6/	2	1.2	-	6.01	-	7.26	-	3.7	-
Myclobutanil	2	-	1.0	2.2	0.10	0.07	0.10	0.16	0.1	0.2
Oxytetracycline	42	32	3.2	2.4	0.14	0.15	0.45	0.37	11.5	7.2
Pseudomonas fluores.	6	9	2.8	2.8	0.10	0.11	0.29	0.32	1.1	1.7
Streptomycin	27	24	2.3	1.8	0.09	0.11	0.22	0.20	3.6	2.9
Streptomycin sulfate	-	17	-	3.7	-	0.04	-	0.15	-	1.6
Sulfur	38	37	1.4	1.4	10.34	10.77	15.22	15.69	352.6	360.5
Triadimefon	5	7	1.1	1.0	0.24	0.15	0.28	0.16	0.8	0.7
Trifloxystrobin	18	14	1.6	1.7	0.07	0.06	0.11	0.11	1.1	0.9
Triflumizole	30	48	1.3	1.6	0.25	0.17	0.34	0.28	6.0	8.3
Ziram	33	33	1.2	1.1	4.64	5.14	5.97	6.05	118.4	122.0
Other Chemicals:										
Butenoic acid hydro.	6/	-	1.0	-	0.10	-	0.11	-	**	-
Cytokinins	1	9	1.0	1.3	4/	5/	4/	5/	**	**
Dodecadien-1-ol	17	17	1.1	1.2	0.06	0.05	0.07	0.06	0.8	0.6
Dodecanol	11	9	1.0	1.0	0.03	0.03	0.04	0.03	0.3	0.2
NAA	31	39	1.2	1.1	0.06	0.06	0.08	0.07	1.5	1.6
NAA, Potassium salt	12	-	1.1	-	0.05	-	0.06	-	0.4	-
NAD	-	*	-	1.0	-	0.02	-	0.02	-	**
Strychnine	6/	-	1.0	-	0.01	-	0.01	-	**	-
Tetradecanol	11	9	1.0	1.0	0.007	0.005	0.007	0.006	0.1	**
Zinc phosphide	2	*	1.0	1.4	0.12	0.07	0.12	0.10	0.1	**

Note: Data may not multiply across due to rounding. * Applied to less than 0.5 percent. ** Total applied is less than 50 pounds.

1/ Bearing acres in 2001 for the 3 major states were 60,800 acres and in 2003 were 61,400 acres. States include were CA, OR, & WA. (Acreage in California includes non-bearing acres.)

2/ Insufficient reports to publish data for the following agricultural chemicals: 2001; Herbicides: Atrazine, Fluazifop-P-butyl, Oryzalin, Pendimethalin, Prosulfuron, Sethoxydim. 2001; Insecticides: Cryolite, Cyd-X Granulo. Virus, Dicofol, Endosulfan, Ethyl parathion, Fenvalerate, Indoxacarb, Methyl parathion, Neem oil, clar. hyd., Oxamyl, Oxythioquinox, Piperonyl butoxide, Potassium salts, Pyrethrins, Pyriproxyfen, Rotenone, Silicon dioxide, Spinosad. 2001; Fungicides: Agrobacterium radio., Bacillus subtilis, Bas copper zinc sulf, Captan, Carboxin, Chlorothalonil, Copper oxide, Iprodione, Metiram, Potassium bicarbon., Propiconazole. 2001; Other Chemicals: Aluminum phosphide, Benyladenine, Chlorophacinone, Chloropicrin, Dichloropropene, Diphenacone, E-8-Dodecenyl acetat, Ethephon, Garlic oil, Gibberellic acid, Gibberellins A4A7, Gossypure, Monocarbamide dihyd., NAD, Prohexadione calcium, Z-8-Dodecanol, Z-8-Dodecenyl acetate. 2003; Herbicides: Fluazifop-P-butyl, Glyphosate diam salt, Napropamide, Pronamide. 2003; Insecticides: Acephate, Cyd-X Granulo. Virus, Dicofol, Dimethoate, Ethyl parathion, Indoxacarb, Lambda-cyhalothrin, Malathion, Methidathion, Methyl parathion, Oxamyl, Piperonyl butoxide, Potassium salts, Propargite, Pyrethrins, Rotenone, Soybean oil. 2003; Fungicides: Captan, Copper (metallic), Copper chloride hyd., Cyprodinil, Iprodione, Maneb, Phosphorous acid, Potassium bicarbon., Propiconazole, Thiophanate-methyl. 2003; Other Chemicals: Aluminum phosphide, Benyladenine, Butenoic Acid Hydro. Chlorophacinone, Chloropicrin, Decenol, Decenyl acetate, E-8-Dodecenyl acetat, Ethephon, Gibberellic acid, Gibberellins A4A7, Harpin protein, Lactic acid, Methyl bromide, Monocarbamide dihyd., Strychnine, Sulfaquinoxaline, Warfarin, Z-8-Dodecanol, Z-8Dodecen acetate.

3/ Rates and total applied are not available because amounts of active ingredient are not comparable between products.

4/ Rates and total applied are not available because amounts of active ingredients are too small.

5/ Rate per acre is less than 0.0005 lbs.

6/ Area applied is less than 1 percent.